

APPENDIX A

ENGINEERING APPENDIX

ATTACHMENT C Resistivity Report

PART 4

Jacksonville Harbor Navigation Study, Duval County,
Florida

DRAFT
INTEGRATED GENERAL REEVALUATION
REPORT II AND SUPPLEMENTAL
ENVIRONMENTAL IMPACT STATEMENT

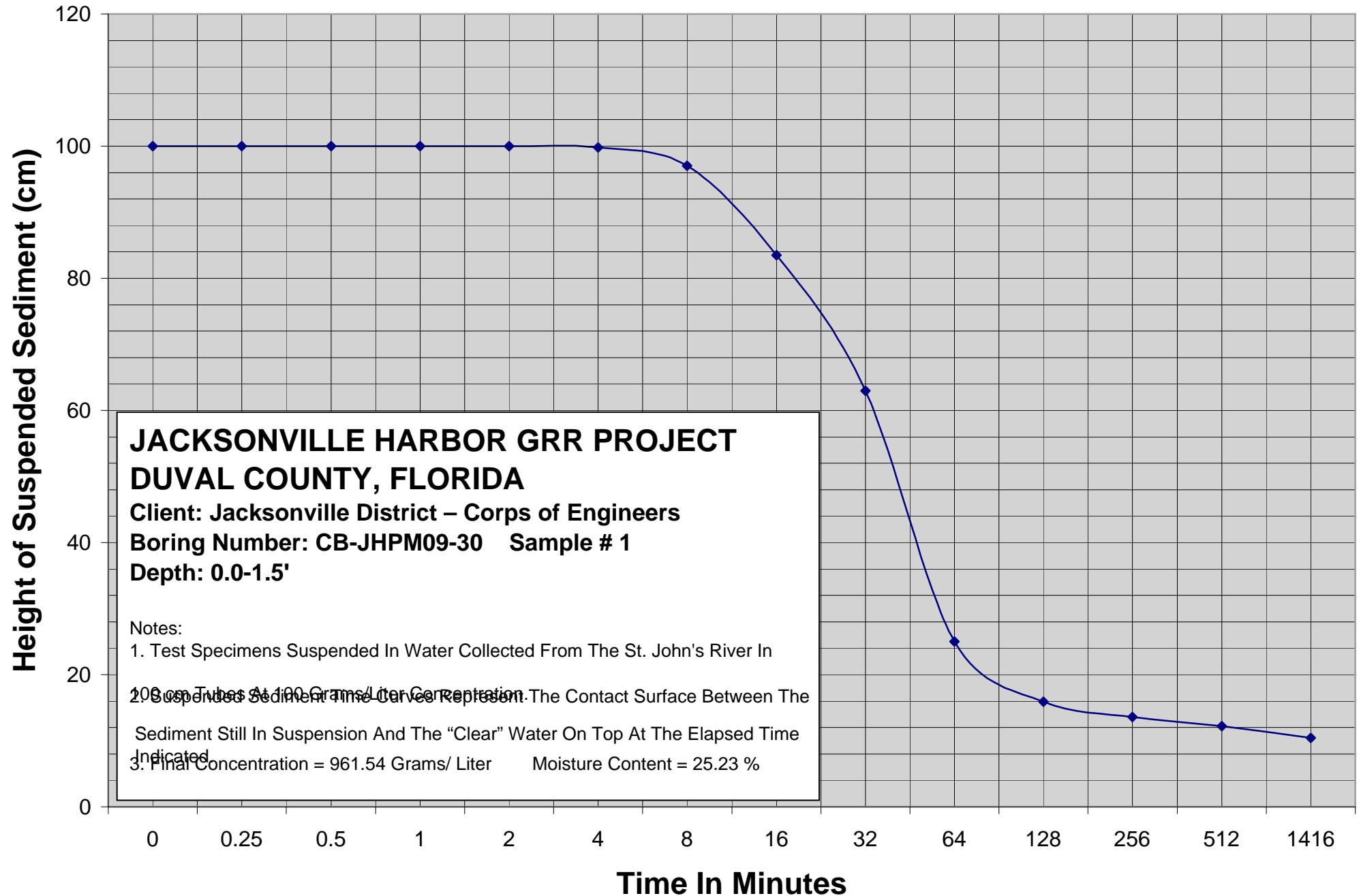
Boring Designation CB-JHPM09-30

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District				SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks					
2. BORING DESIGNATION CB-JHPM09-30				LOCATION COORDINATES X = 520,152 Y = 2,205,593		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig			
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES		DISTURBED 11		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				DEG. FROM VERTICAL		BEARING		13. TOTAL NUMBER CORE BOXES 2	
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL		15. DATE BORING			
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.1 Ft.		STARTED 08-27-09		COMPLETED 08-27-09	
8. TOTAL DEPTH OF BORING 16.5 Ft.				17. TOTAL RECOVERY FOR BORING 71 %					
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer					

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RCD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-45.1	0.0		SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, some angular to subangular shell up to 1-1/2", little silt, wet, 5Y 5/2 olive gray (SM)	67	1		-45.1	10	0
							SPT Sampler	10	22
							-46.6	12	
			At El. -47.6 Ft., little angular to subangular shell up to 2", 5Y 5/1 gray	67	2		SPT Sampler	7	15
							-48.1	8	
							-49.6	7	14
			At El. -50.1 Ft., 5Y 5/2 olive gray	73	3		SPT Sampler	12	
							-51.1	7	11
							-52.6	5	5
							SPT Sampler	4	
			SHELL, mostly angular to subangular shell up to 1", few angular to subangular fine-grained sand-sized quartz, wet, 5Y 5/2 olive gray	60	5		SPT Sampler	7	17
							-52.6	10	
			SAND, poorly-graded, some angular to subangular fine-grained sand-sized quartz, few angular to subangular shell up to 3/8", moist, 5Y 5/1 gray (SP)	80	6		SPT Sampler	5	11
			At El. -54.4 Ft., 5Y 4/2 olive gray	60	7		SPT Sampler	4	10
							-54.1	5	
							-55.6	6	10
			SHELL, mostly angular to subangular shell up to 3/8", few angular to subangular fine-grained sand-sized quartz, moist, 5Y 5/2 olive gray	67	8		SPT Sampler	5	11
			At El. -57.1 Ft., some angular to subangular fine-grained sand-sized quartz	53	9		SPT Sampler	4	10
							-57.1	6	
							-58.6	4	
			At El. -59.1 Ft., mostly angular to subangular shell up to 2", little angular to subangular fine-grained sand-sized quartz	87	10		SPT Sampler	5	12
							-60.1	7	

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 520,152 Y = 2,205,593			ELEVATION TOP OF BORING -45.1 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-61.1	16.0	0 0 0 0		93	11		SPT Sampler	11	
-61.6	16.5	• • • •	SAND, poorly-graded with silt, mostly angular to subangular fine-grained sand-sized quartz, few silt, dry, 5Y 5/2 olive gray (SP-SM)				-61.6	16	56
			<p>NOTES:</p> <p>1. USACE Jacksonville is the custodian for these original files.</p> <p>2. Soils are field visually classified in accordance with the Unified Soils Classification System.</p> <p>3. Set 55.5 ft. of 4" flush joint steel casing</p> <p>4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Mayport Bar Pilots Dock.</p> <p>5. Water depth of -48.9 ft. recorded at 12:45 PM on 8/27/09. Tide gage reading of +3.8 ft. mllw</p>				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).	40	

SUSPENDED SEDIMENTATION TIME CURVES



JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 1.5-3.0'

S- 2

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 4.5-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 6.0'-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 7.5-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 9.0'-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 10.5'-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 12.0-13.5

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 13.5-15.0'

S- 10

JACKSONVILLE HARBOR GRR

CB-JHPM09-30

DEPTH: 15.0-16.5'

S- //

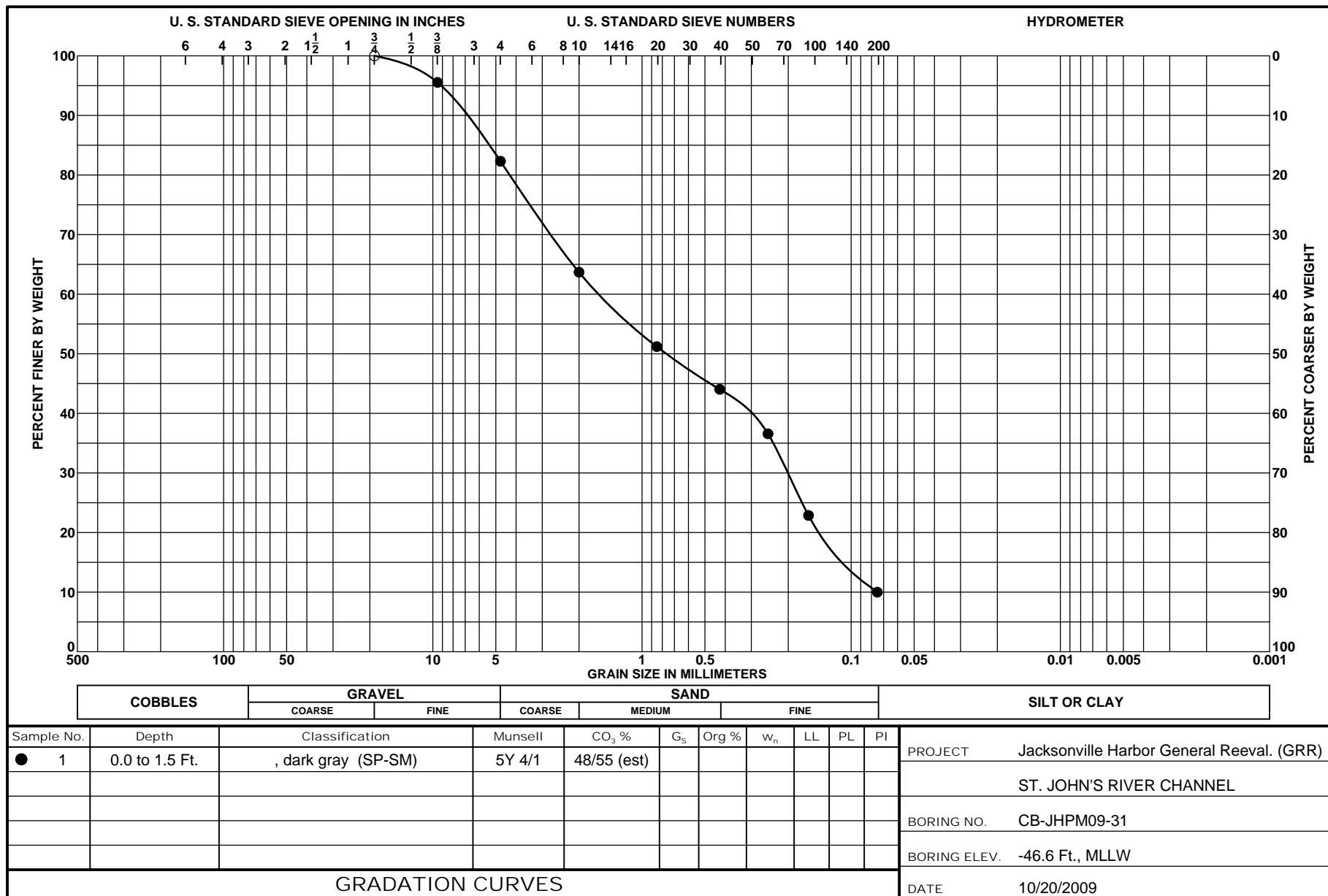
TEST CORE BORING NUMBER
“CB-JHPM09-31”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-31

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS		
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks					
2. BORING DESIGNATION CB-JHPM09-31				10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW	
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER			
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES		DISTURBED 10		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 1					
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL					
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 08-27-09		COMPLETED 08-27-09	
8. TOTAL DEPTH OF BORING 15.0 Ft.				16. ELEVATION TOP OF BORING -46.6 Ft.					
				17. TOTAL RECOVERY FOR BORING 79 %					
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-46.6	0.0		SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, some angular to subangular shell up to 1", few silt, wet, 5Y 4/1 dark gray (SP-SM)	67	1		-46.6	5	0
			At El. -48.6 Ft., some shell up to 2"	53	2		-48.1	3	9
				53	3		-49.6	5	3
-51.1	4.5		SHELL, mostly angular to subangular shell up to 1", few angular to subangular fine-grained sand-sized quartz, wet, 5Y 4/1 dark gray	40	4		-51.1	3	7
-52.6	6.0		CLAY, lean, low plasticity, soft, moist, organic odor, 10Y 4/1 dark greenish gray (CL)	100	5		-52.6	2	5
				80	6		-54.1	1	4
-57.1	10.5		At El. -56.6 Ft., little angular to subangular shell up to 1"	100	7		-55.6	2	10
			CLAY, fat, medium plasticity, firm, discontinue shell, moist, 10Y 4/1 dark greenish gray (CH)	100	8		-57.1	2	4
			At El. -57.6 Ft., few wood debris	100	9		-58.6	3	7
-61.6	15.0			100	10		-60.1	4	6
							-61.6	6	11

<i>DRILLING LOG (Cont. Sheet)</i>			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS									
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW									
LOCATION COORDINATES X = 522,200 Y = 2,206,760			ELEVATION TOP OF BORING -46.6 Ft.												
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE						
			<p>NOTES:</p> <ol style="list-style-type: none"> USACE Jacksonville is the custodian for these original files. Soils are field visually classified in accordance with the Unified Soils Classification System. Set 55.5 ft. of 4" flush joint steel casing Water depth recorded at start of drilling operations and referenced to the tidal station at the Mayport Bar Pilots Dock. Water depth of -47.8 ft. recorded at 09:15 AM on 8/27/09. Tide gage reading of +1.2 ft. mllw Laboratory Testing Results <table border="1"> <thead> <tr> <th>SAMPLE ID</th> <th>SAMPLE DEPTH</th> <th>LABORATORY CLASSIFICATION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.0/1.5</td> <td>SP-SM*</td> </tr> </tbody> </table> <p>*Lab visual classification based on gradation curve. No Atterberg limits.</p>	SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION	1	0.0/1.5	SP-SM*				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).		
SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION													
1	0.0/1.5	SP-SM*													



JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 1.5-3.0'

S- 2

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 4.5'-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 6.0-7.5'

S- 5

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 7.5-9.0'

S- 6

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 9.0'-10.5'

S- 7

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 10.5'-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 12.0-13.5'

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-31

DEPTH: 13.5-15.0'

S-10

TEST CORE BORING NUMBER
“CB-JHPM09-32”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-32

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-32				10. COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL State Plane, FLE (U.S. Ft.) NAD83 MLLW				
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Diedrich D-50 Truckrig <input checked="" type="checkbox"/> MANUAL HAMMER				
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 12 0				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL DEG. FROM VERTICAL BEARING <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 1				
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL				
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING STARTED COMPLETED 08-26-09 08-26-09				
8. TOTAL DEPTH OF BORING 18.0 Ft.				16. ELEVATION TOP OF BORING -43.5 Ft.				
				17. TOTAL RECOVERY FOR BORING 84 %				
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE	
-43.5	0.0		SAND, poorly-graded, mostly angular to subangular fine to medium-grained sand-sized quartz, few angular to subangular shell up to 3/4", wet, 5Y 5/2 olive gray (SP)	67	1		-43.5	4	9	
							SPT Sampler	4		
							-45.0	5		
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	67	2			5	13	
							SPT Sampler	6		
							-46.5	7		
-47.5	4.0		SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	80	3			10	31	
							SPT Sampler	17		
							-48.0	14		
				SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	87	4			5	23
								SPT Sampler	11	
								-49.5	12	
				SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	100	5			5	20
								SPT Sampler	6	
								-51.0	14	
				SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	67	6			2	5
							SPT Sampler	3		
							-52.5	2		
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	80	7			9	29	
							SPT Sampler	12		
							-54.0	17		
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	87	8			10	33	
							SPT Sampler	16		
							-55.5	17		
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	87	9			5	35	
							SPT Sampler	10		
							-57.0	25		
			SAND, poorly-graded with silt, mostly angular to subangular medium to coarse-grained sand-sized quartz, few silt, discontinue shell, moist, 10Y 3/1 very dark greenish gray (SP-SM)	87	10			15	51	
							SPT Sampler	25		
							-58.5	26		

Boring Designation CB-JHPM09-32

<i>DRILLING LOG (Cont. Sheet)</i>			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS									
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW								
LOCATION COORDINATES X = 524,075 Y = 2,206,438			ELEVATION TOP OF BORING -43.5 Ft.												
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE						
-61.5	18.0			100	11		SPT Sampler	12 21 22	43						
							-60.0								
				100	12		SPT Sampler	17 21 18	39						
							-61.5								
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 55.5 ft. of 4" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Mayport Bar Pilots Dock. 5. Water depth of -46.5 ft. recorded at 11:05 AM on 8/26/09. Tide gage reading of +3.0 ft. mllw 6. Laboratory Testing Results <table border="1"> <thead> <tr> <th>SAMPLE ID</th> <th>SAMPLE DEPTH</th> <th>LABORATORY CLASSIFICATION</th> </tr> </thead> <tbody> <tr> <td>2</td> <td>1.5/3.0</td> <td>SP*</td> </tr> </tbody> </table> *Lab visual classification based on gradation curve. No Atterberg limits.	SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION	2	1.5/3.0	SP*				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).		
SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION													
2	1.5/3.0	SP*													

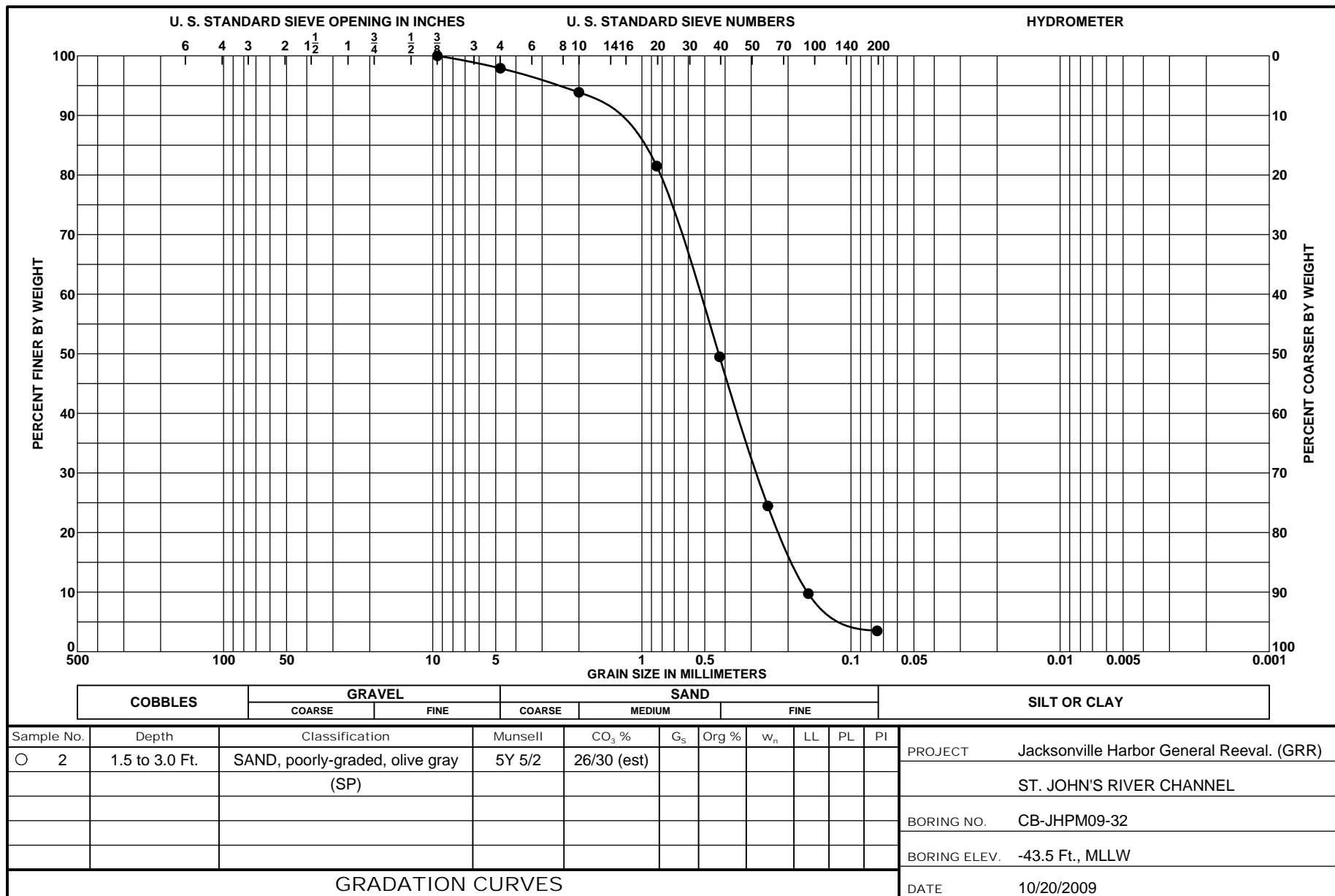
15

20

25

30

35



JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 1.5'-3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 3.0-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 4.5' - 6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 6.0-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 7.5-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 9.0'-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 10.5-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 12.0-13.5

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 13.5-15.0'

S-10

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 15.0-16.5'

S- 11

JACKSONVILLE HARBOR GRR

CB-JHPM09-32

DEPTH: 16.5-18.0'

S-12

TEST CORE BORING NUMBER
“CB-JHPM09-33”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-33

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS		
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks					
2. BORING DESIGNATION CB-JHPM09-33		LOCATION COORDINATES X = 526,130 Y = 2,206,770		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW		
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.		CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER			
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES		DISTURBED 8	UNDISTURBED (UD) 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 2		14. ELEVATION GROUND WATER TIDAL			
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING		STARTED 08-26-09	COMPLETED 08-26-09		
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -49.2 Ft.		17. TOTAL RECOVERY FOR BORING 92 %			
8. TOTAL DEPTH OF BORING 12.0 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RCD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-49.2	0.0		CLAY, fat, medium plasticity, firm, few angular to subangular shell up to 1/4", trace wood debris, wet, organic odor, 5Y 3/2 dark olive gray (CH)	100	1		-49.2	1	0
			At El. -50.7 Ft., discontinue shell				SPT Sampler	1	
							-50.7	2	
					100	2		SPT Sampler	2
							-52.2	2	
			At El. -53.2 Ft., few wood debris	93	3		SPT Sampler	3	4
							-53.7	2	
			At El. -54.7 Ft., 5Y 2.5/2 black	100	4		SPT Sampler	2	5
-55.2	6.0						-55.2	2	
			SAND, poorly-graded with silt, mostly angular to subangular fine-grained sand-sized quartz, few silt, wet, 5Y 5/2 olive gray (SP-SM)	87	5		SPT Sampler	12	31
								-56.7	
				87	6		SPT Sampler	13	27
-58.2	9.0						-58.2	14	
			SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, little silt, wet, 5Y 4/2 olive gray (SM)	67	7		SPT Sampler	5	12
								-59.7	
			At El. -60.2 Ft., 10Y 3/1 very dark greenish gray	100	8		SPT Sampler	12	31
-61.2	12.0						-61.2	16	
NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System.				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).					

Boring Designation CB-JHPM09-33

<i>DRILLING LOG (Cont. Sheet)</i>			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 526,130 Y = 2,206,770			ELEVATION TOP OF BORING -49.2 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			3. Set 60.5 ft. of 4" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Mayport Bar Pilots Dock. 5. Water depth of -50.4 ft. recorded at 08:50 AM on 8/26/09. Tide gage reading of +1.2 ft. mllw						

15

20

25

30

35

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 0.0-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 1.5-3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 3.0-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 4.5'-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 6.0-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 7.5-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 9.0-10.5'

S- 7

JACKSONVILLE HARBOR GRR

CB-JHPM09-33

DEPTH: 10.5'-12.0'

S-8


TEST CORE BORING NUMBER
“CB-JHPM09-34”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-34

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-34				10. COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL State Plane, FLE (U.S. Ft.) NAD83 MLLW				
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Diedrich D-50 Truckrig <input checked="" type="checkbox"/> MANUAL HAMMER				
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 13 13 0				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL DEG. FROM VERTICAL BEARING <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 1				
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL				
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING STARTED COMPLETED 08-25-09 08-25-09				
8. TOTAL DEPTH OF BORING 19.5 Ft.				16. ELEVATION TOP OF BORING -42.9 Ft.				
				17. TOTAL RECOVERY FOR BORING 77 %				
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE		
-42.9	0.0						-42.9				
			SHELL, mostly angular to subangular sand to gravel-sized shell up to 3/8", little angular to subangular medium to coarse-grained sand-sized quartz, wet, 5Y 6/1 gray	80	1		SPT Sampler	3	9		
	4										
-44.4	1.5							5			
			SAND, poorly-graded, mostly angular to subangular fine to medium-grained sand-sized quartz, some angular to subangular shell up to 1", wet, 5Y 6/2 light olive gray (SP)	20	2		SPT Sampler	8	28		
								12			
				67	3		SPT Sampler	16	44		
								18			
				67	4		SPT Sampler	20	5		
								24			
				73	5		SPT Sampler	12	25		
								15			
				73	6		SPT Sampler	18	30		
								10			
-51.9	9.0				SAND, poorly-graded with silt, mostly angular to subangular fine-grained sand-sized quartz, some angular to subangular shell up to 1/2", few silt, moist, 5Y 4/1 dark gray (SP-SM)	60	7		SPT Sampler	12	22
										10	
		12									
			SAND, poorly-graded, mostly angular to subangular fine-grained sand-sized quartz, few angular to subangular shell up to 1/8", moist, 5Y 6/1 gray (SP)	73	8		SPT Sampler	13	23		
								12			
-54.9	12.0							11			
			CLAY, fat, medium plasticity, firm, moist, 5GY 4/1 dark greenish gray (CH)	93	9		SPT Sampler	4	4		
								2			
				100	10		SPT Sampler	2	6		
								3			
							-57.9	3			

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 527,920 Y = 2,206,000			ELEVATION TOP OF BORING -42.9 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-62.4	19.5			100	11		SPT Sampler	2 2 2	4
				100	12		SPT Sampler	1 2 2	4
				100	13		SPT Sampler	2 2 2	4
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 57.5 ft. of 4" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Mayport Bar Pilots Dock. 5. Water depth of -48.0 ft. recorded at 13:00 PM on 8/25/09. Tide gage reading of +5.1 ft. mllw				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).		

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 1.5' - 3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 4.5-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 6.0-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 7.5-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 9.0-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 10.5-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 12.0-13.5'

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 13.5-15.0'

S-10

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 15.0-16.5'

S- 11

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 16.5-18.0'

S-12

JACKSONVILLE HARBOR GRR

CB-JHPM09-34

DEPTH: 18.0-19.5'

S-13

TEST CORE BORING NUMBER
“CB-JHPM09-35”

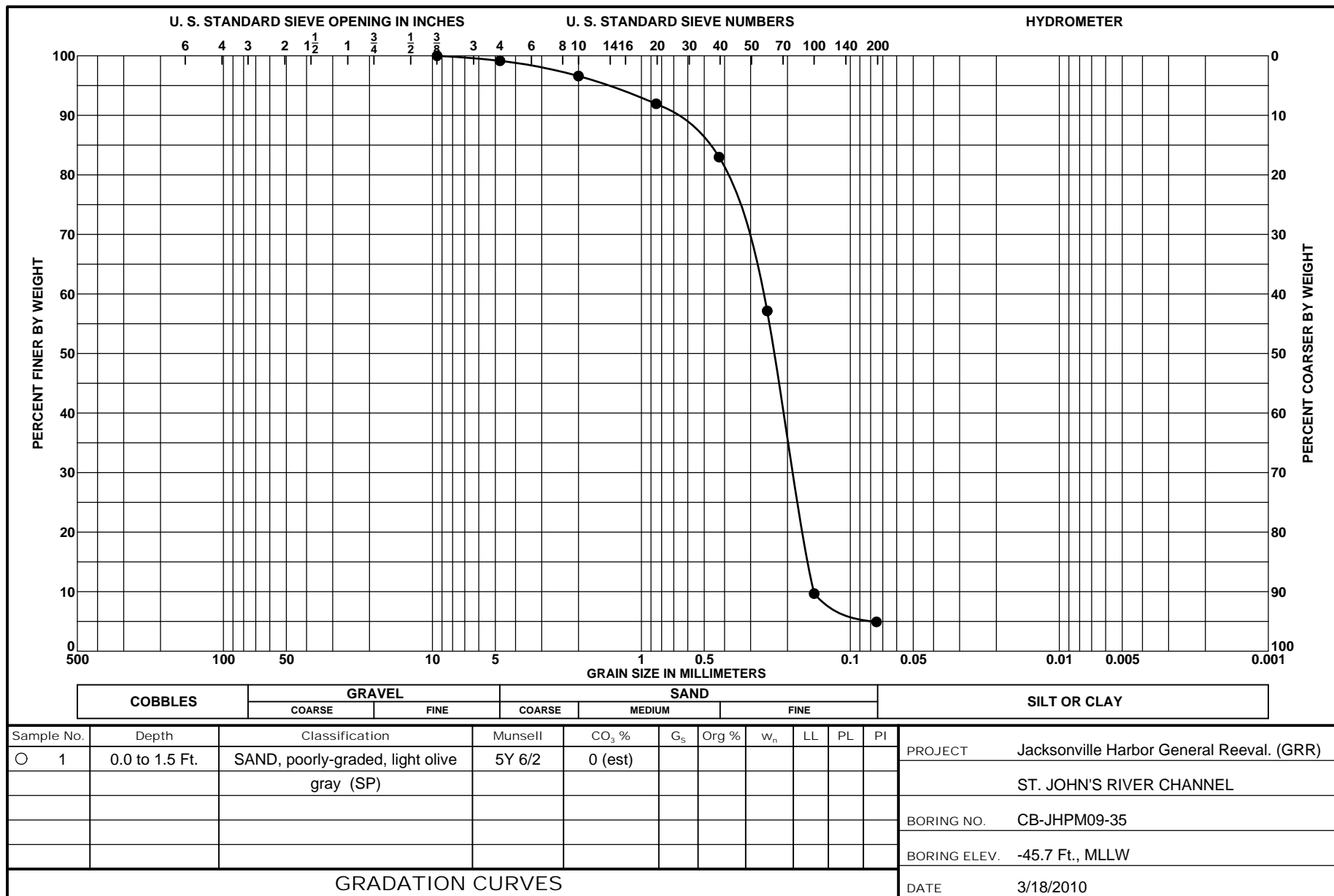
gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-35

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) ST. JOHN'S RIVER CHANNEL				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-35				10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER		
4. NAME OF DRILLER Tim Clarkson				12. TOTAL SAMPLES 7		DISTURBED 7		UNDISTURBED (UD) 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER TIDAL		
6. THICKNESS OF OVERBURDEN N/A				15. DATE BORING 02-02-10		STARTED 02-02-10		COMPLETED 02-02-10
7. DEPTH DRILLED INTO ROCK N/A				16. ELEVATION TOP OF BORING -45.7 Ft.		17. TOTAL RECOVERY FOR BORING 78 %		
8. TOTAL DEPTH OF BORING 18.3 Ft.				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-45.7	0.0						-45.7		
			SAND, poorly-graded, mostly angular to subangular fine to medium-grained sand-sized quartz, trace angular to subangular shell up to 1/8", wet, 5Y 6/2 light olive gray (SP)	53	1		SPT Sampler	0	
							-47.2	1	
-47.7	2.0		LIMESTONE, sandy, non-fossiliferous, soft, moderately weathered, medium grained, moist, 5Y 8/2 pale yellow	100	2		SPT Sampler	11	
							-48.2	50	
				100	Run # 1	RQD 0	4 x 5-1/2" Diamond Impregnated Bit DT = 6 mins HP = 300 psi DFR = 25 %		
							-50.7		
			At El. -50.7 Ft., moderately hard, slightly weathered, fine grained, solid						
			At El. -51.7 Ft., very soft, highly weathered						
				55	Run # 2	RQD 53	4 x 5-1/2" Diamond Impregnated Bit DT = 4 mins HP = 300 psi DFR = 25 %		
			At El. -54.7 Ft., moderately hard, unweathered, fine grained, solid						
			At El. -56.7 Ft., soft, highly weathered						
			At El. -57.1 Ft., moderately hard, slightly weathered						
				100	3		SPT Sampler	50/0.4'	
							Advanced Boring		
							-58.7		
				67	4		SPT Sampler	50/0.3'	
				100	Run # 3	RQD 40	4 x 5-1/2" Diamond Impregnated Bit DT = 4 mins HP = 300 psi DFR = 25 %		
-60.7	15.0								

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS									
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW									
LOCATION COORDINATES X = 459,932 Y = 2,204,315			ELEVATION TOP OF BORING -45.7 Ft.												
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE						
-64.0	18.3	Sl. Wea. M Slightly Weathered	LIMESTONE, sandy At El. -62.7 Ft., soft, moderately weathered At El. -63.1 Ft., moderately hard, slightly weathered, fine grained, solid	100	Run # 3	RQD 40	4 x 5-1/2" Diamond Impregnated Bit DT = 4 mins HP = 300 psi DFR = 25 % -64.0								
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 57.5 ft. of 6" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Navy Fuel Facility. 5. Water depth of -48.1 ft. recorded at 11:10 AM on 2/2/2010. Tide gage reading of +2.4 ft. mllw 6. Compressive Strength Test of Rock Core At Elevation -50.7' to -51.4' = 1551 PSI. 7. Laboratory Testing Results <table border="1"> <thead> <tr> <th>SAMPLE ID</th> <th>SAMPLE DEPTH</th> <th>LABORATORY CLASSIFICATION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.0/1.5</td> <td>SP*</td> </tr> </tbody> </table> *Lab visual classification based on gradation curve. No Atterberg limits.	SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION	1	0.0/1.5	SP*				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.). Abbreviations: DT = Drill Time. HP = Hydraulic Pressure. DFR = Drill Fluid Return.		
SAMPLE ID	SAMPLE DEPTH	LABORATORY CLASSIFICATION													
1	0.0/1.5	SP*													



JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 1.5' 2.5'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 2.5' - 5.0'

S-Run #1

2.5'



5.0'



JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 5.0'-11.5'

S-Run #2

5.0'



11.5'



JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 11.5'-13.0'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-35

DEPTH: 13.0'-13.3'

S-4

JACKSONVILLE HARBOR GRR
CB-JHPM09-35

DEPTH: 13.3'-18.3'

S-Run #3

13.3'

18.3'



TEST CORE BORING NUMBER
“CB-JHPM09-36”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-36

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 3 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) TALLEYRAND BASIN				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-36		LOCATION COORDINATES X = 462,062 Y = 2,191,979		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW	
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.		CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER		
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES		DISTURBED 20	UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		2		
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER		TIDAL		
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-04-10	COMPLETED 02-04-10	
8. TOTAL DEPTH OF BORING 30.0 Ft.				16. ELEVATION TOP OF BORING		-34.4 Ft.		
				17. TOTAL RECOVERY FOR BORING		76 %		
				18. SIGNATURE AND TITLE OF INSPECTOR		V. J. Thompson III, Civil Engineer		

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-34.4	0.0						-34.4		
			SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, some silt, wet, organic odor, 5Y 3/2 dark olive gray (SM)	67	1		SPT Sampler	0	
-35.9	1.5						-35.9	0	
			SILT, organic-L, nonplastic, very soft, wet, organic odor, 5Y 7/2 light gray (OL)	33	2		SPT Sampler	0	
			At El. -37.4 Ft., few angular to subangular fine-grained sand-sized quartz, 5Y 3/2 dark olive gray	60	3		SPT Sampler	0	
			At El. -38.9 Ft., trace angular to subangular shell up to 3/4"	53	4		SPT Sampler	0	
				100	5		SPT Sampler	0	
				73	6		SPT Sampler	0	
			At El. -42.9 Ft., few angular to subangular shell up to 1/8"	60	7		SPT Sampler	0	
				73	8		SPT Sampler	0	
			At El. -44.9 Ft., some angular to subangular fine-grained sand-sized quartz, few angular to subangular shell up to 1/4"	53	9		SPT Sampler	0	
				100	10		SPT Sampler	0	
			At El. -47.9 Ft., little angular to subangular fine-grained sand-sized quartz					0	
							-49.4	0	

Boring Designation CB-JHPM09-36

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 3 SHEETS					
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW					
LOCATION COORDINATES X = 462,062 Y = 2,191,979			ELEVATION TOP OF BORING -34.4 Ft.								
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE		
-54.4	20.0		At El. -53.9 Ft., some angular to subangular fine to medium-grained sand-sized quartz At El. -54.3 Ft., trace plant debris SILT, inorganic-H, nonplastic, hard, dry, 5Y 8/1 white (MH) At El. -56.9 Ft., few angular to subangular fine to medium-grained sand-sized quartz At El. -57.9 Ft., some angular to subangular fine to medium-grained sand-sized quartz SAND, poorly-graded, mostly angular to subangular fine to medium-grained sand-sized quartz, trace phosphate, moist, 5Y 6/2 light olive gray (SP) At El. -61.4 Ft., 5Y 6/1 gray	100	11		SPT Sampler	0	0		
										0	
										0	
						93	12		SPT Sampler	0	0
										0	
										0	
						73	13		SPT Sampler	0	2
										0	
										2	
						73	14		SPT Sampler	4	14
								5			
								9			
				93	15		SPT Sampler	5	33		
								15			
								18			
				80	16		SPT Sampler	10	33		
								16			
								17			
				67	17		SPT Sampler	7	21		
								9			
								12			
				80	181		SPT Sampler	7	22		
								8			
								14			
				100	19		SPT Sampler	8	35		
								15			
								20			
				87	20		SPT Sampler	7	19		
								12			
								7			
-64.4	30.0										
			NOTES:				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).				
			1. USACE Jacksonville is the custodian for these original files.								
			2. Soils are field visually classified in accordance with the Unified Soils Classification System.								
			3. Set 45.5 ft. of 6" flush joint steel casing								
			4. Water depth recorded at start of drilling operations and referenced to the tidal station at the COE Talleyrand Street.								

Boring Designation CB-JHPM09-36

<i>DRILLING LOG (Cont. Sheet)</i>			INSTALLATION Jacksonville District			SHEET 3 OF 3 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 462,062 Y = 2,191,979			ELEVATION TOP OF BORING -34.4 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
			5. Water depth of -34.6 ft. recorded at 08:09 AM on 2/4/2010. Tide gage reading of +0.2 ft. mllw						

35

40

45

50

55

JACKSONVILLE HARBOR GRR

CB-JHPM09- 36

DEPTH: 0.0-1.5'

S- 1

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 1.5' - 3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 4.5-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 6.0'-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 7.5'-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 9.0'-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 10.5'-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 12.0'-13.5'

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 13.5'-15.0'

S-10

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 15.0' - 16.5'

S-11

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 16.5'-18.0'

S-12

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 18.0-19.5'

S-13

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 19.5-21.0'

S-14

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 21.0-22.5'

S- 15

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 22.5'-24.0'

S-16

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 24.0-25.5'

S-17

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 25.5'-27.0'

S-18

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 27.0'-28.5'

S-19

JACKSONVILLE HARBOR GRR

CB-JHPM09-36

DEPTH: 28.5' - 30.0'

S-20

TEST CORE BORING NUMBER
“CB-JHPM09-37”

gINT Boring Log
Laboratory Curves
Sample Photographs

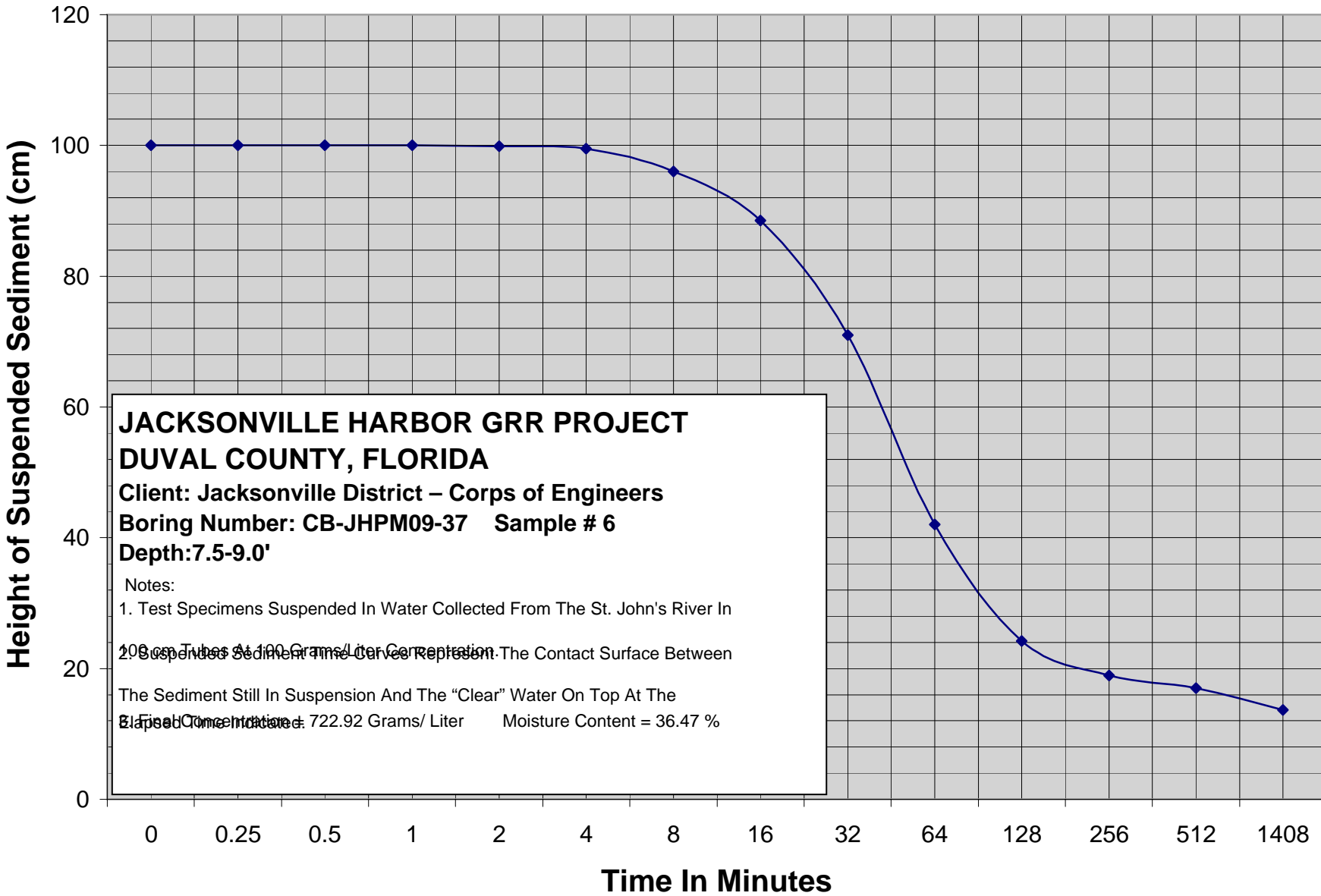
Boring Designation CB-JHPM09-37

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) DRUMMOND WIDENER				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-37				10. COORDINATE SYSTEM/DATUM HORIZONTAL VERTICAL State Plane, FLE (U.S. Ft.) NAD83 MLLW				
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL <input type="checkbox"/> AUTO HAMMER Diedrich D-50 Truckrig <input checked="" type="checkbox"/> MANUAL HAMMER				
4. NAME OF DRILLER Tim Clarkson				12. TOTAL SAMPLES DISTURBED UNDISTURBED (UD) 18 0				
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL DEG. FROM VERTICAL BEARING <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 1				
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL				
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING STARTED COMPLETED 02-01-10 02-01-10				
8. TOTAL DEPTH OF BORING 25.6 Ft.				16. ELEVATION TOP OF BORING -36.9 Ft.				
				17. TOTAL RECOVERY FOR BORING 82 %				
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-36.9	0.0						-36.9		
			SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, some silt, wet, 5Y 4/2 olive gray (SM) At El. -39.9 Ft., trace angular shell up to 1/8", organic odor, 5Y 4/1 dark gray At El. -41.4 Ft., discontinue shell, 5Y 5/1 gray At El. -42.9 Ft., trace angular shell up to 1/8"	93	1		SPT Sampler	0	0
							-38.4	0	0
				80	2		SPT Sampler	0	0
							-39.9	0	0
				87	3		SPT Sampler	0	0
							-41.4	0	0
				47	4		SPT Sampler	0	0
							-42.9	0	0
				87	5		SPT Sampler	0	0
							-44.4	0	0
						-45.9	1	0	
						-47.4	0	0	
						-48.9	0	0	
						-50.4	0	0	
			At El. -50.4 Ft., little silt	73	9		SPT Sampler	2	2
						-51.9	1		

DRILLING LOG (Cont. Sheet)				INSTALLATION Jacksonville District				SHEET 2 OF 2 SHEETS	
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)				COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW	
LOCATION COORDINATES X = 464,768 Y = 2,207,392				ELEVATION TOP OF BORING -36.9 Ft.					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-56.4	19.5		At El. -53.4 Ft., discontinue shell	67	11		SPT Sampler	1	2
							-53.4	1	
			At El. -55.9 Ft., trace angular shell up to 1/2"	80	12		SPT Sampler	2	3
							-54.9	2	
								1	
-56.4	19.5		At El. -55.9 Ft., trace angular shell up to 1/2"	100	13		SPT Sampler	2	4
							-56.4	2	
-60.9	24.0		CLAY, fat, medium plasticity, firm, trace angular shell up to 1/8", moist, 10Y 4/1 dark greenish gray (CH)	100	14		SPT Sampler	1	1
							-57.9	1	
								0	
			At El. -59.4 Ft., discontinue shell	87	15		SPT Sampler	1	2
							-59.4	1	
								1	
-60.9	24.0		At El. -59.4 Ft., discontinue shell	80	16		SPT Sampler	0	0
							-60.9	0	
								0	
-62.5	25.6		LIMESTONE, sandy, sparsely fossiliferous, moderately hard, slightly weathered, fine grained, moist, 5Y 8/2 pale yellow	100	17		SPT Sampler	50/0.4'	25
							-61.3		
							Advanced Boring		
-62.5	25.6		LIMESTONE, sandy, sparsely fossiliferous, moderately hard, slightly weathered, fine grained, moist, 5Y 8/2 pale yellow	0	18		SPT Sampler	50/0.1'	25
							-62.4		
NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 54.5 ft. of 6" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Navy Fuel Station. 5. Water depth of -39.5 ft. recorded at 12:30 PM on 2/1/2010. Tide gage reading of +2.6 ft. mllw						140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).			

SUSPENDED SEDIMENTATION TIME CURVES



JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 1.5' - 3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 4.5-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 6.0'-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 7.5'-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 9.0'-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 10.5-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 12.0'-13.5'

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 13.5'-15.0'

S-10

EXPO

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 15.0'-16.5'

S-11

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 16.5' 18.0'

S-12

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 18.0'-19.5'

S-13

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 19.5'-21.0'

S-14

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 21.0' - 22.5'

S-15

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 22.5'-24.0'

S-16



JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 24.0'-25.5'

S-17

JACKSONVILLE HARBOR GRR

CB-JHPM09-37

DEPTH: 25.5'-27.0'

S-18

no recovery

TEST CORE BORING NUMBER
“CB-JHPM09-38”

gINT Boring Log
Laboratory Curves
Sample Photographs

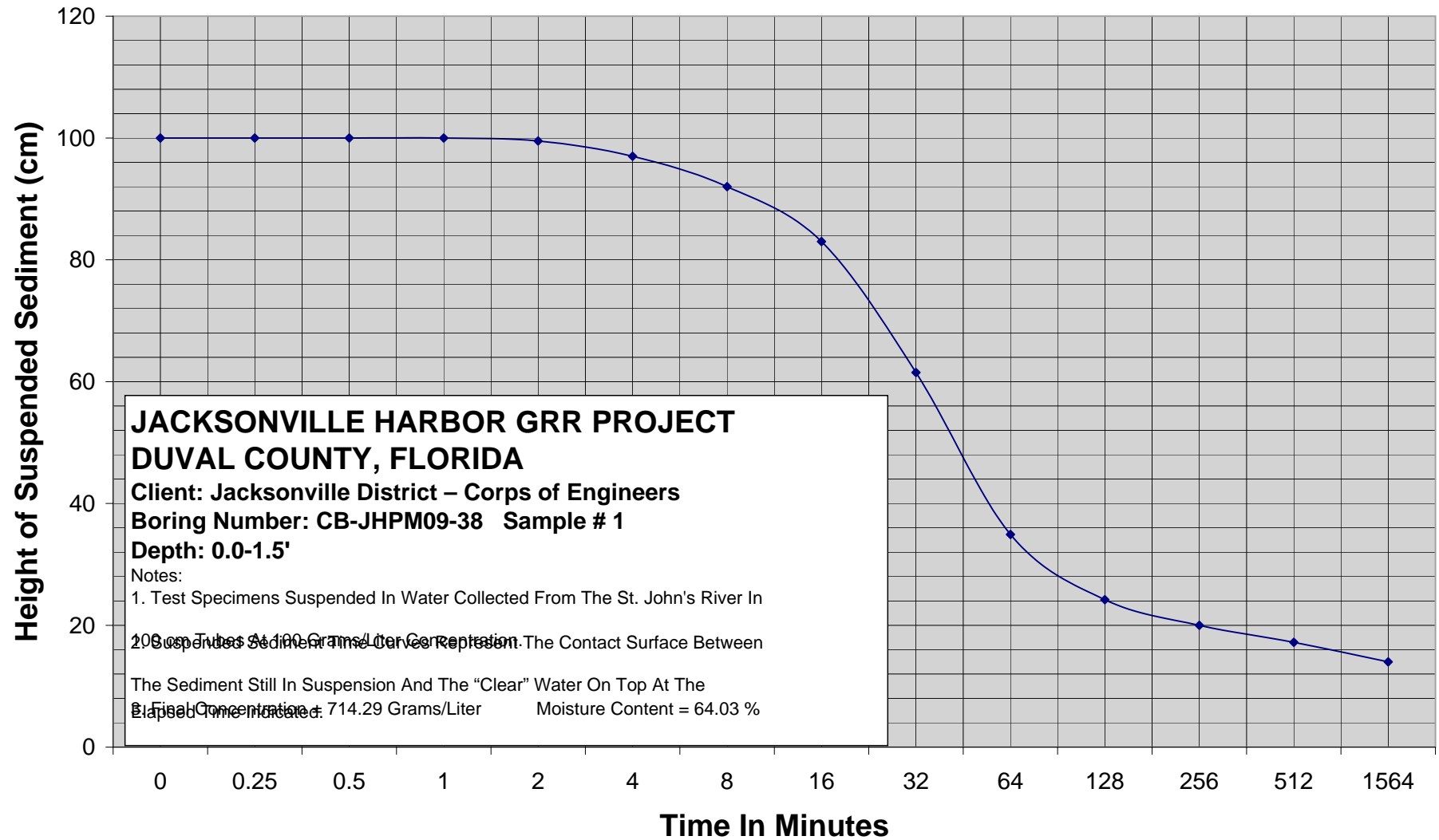
Boring Designation CB-JHPM09-38

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS		
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) DRUMMOND WIDENER				9. SIZE AND TYPE OF BIT See Remarks					
2. BORING DESIGNATION CB-JHPM09-38				10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW	
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.				11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER			
4. NAME OF DRILLER Marvin Strickland				12. TOTAL SAMPLES		DISTURBED 16		UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 1					
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL					
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-02-10		COMPLETED 02-02-10	
8. TOTAL DEPTH OF BORING 24.0 Ft.				16. ELEVATION TOP OF BORING -43.0 Ft.					
				17. TOTAL RECOVERY FOR BORING 67 %					
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-43.0	0.0		SILT, organic-L, nonplastic, very soft, trace angular to subangular shell up to 1/8", wet, 5Y 4/1 dark gray (OL)	47	1		-43.0	0	0
							SPT Sampler	0	0
				40	2		-44.5	0	0
							SPT Sampler	0	0
-46.0	3.0		CLAY, fat, high plasticity, soft, few angular to subangular fine-grained sand-sized quartz, moist, organic odor, 5Y 3/2 dark olive gray (CH)	47	3		-46.0	0	0
							SPT Sampler	0	0
-47.9	4.9		SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, little silt, moist, organic odor, 5Y 4/2 olive gray (SM)	73	4		-47.5	0	5
							SPT Sampler	0	0
-49.0	6.0		CLAY, lean, low plasticity, firm, trace angular to subangular shell up to 1/2", moist, organic odor, 5Y 4/1 dark gray (CL)	100	5		-49.0	0	2
							SPT Sampler	1	2
-51.5	8.5		At El. -51.0 Ft., no odor	100	6		-50.5	1	4
							SPT Sampler	2	4
			SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, little silt, moist, 5Y 4/1 dark gray (SM)	60	7		-52.0	2	5
			At El. -52.0 Ft., trace angular to subangular shell up to 1/8", 5Y 4/1 dark gray				SPT Sampler	3	5
				67	8		-53.5	2	5
							SPT Sampler	3	5
				60	9		-55.0	2	2
							SPT Sampler	1	2
							-56.5	1	2
				73	10		-58.0	2	6
							SPT Sampler	4	6

Boring Designation CB-JHPM09-38

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS						
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW						
LOCATION COORDINATES X = 462,438 Y = 2,206,041			ELEVATION TOP OF BORING -43.0 Ft.									
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE			
-67.0	24.0		At El. -58.0 Ft., organic odor	67	11			1	4			
							SPT Sampler	1				
							-59.5	3				
						At El. -59.5 Ft., discontinue shell	60	12			2	4
									SPT Sampler	1		
									-61.0	3		
						At El. -60.0 Ft., 5Y 6/1 gray	60	13			2	7
									SPT Sampler	3		
									-62.5	4		
							60	14			2	20
									SPT Sampler	4		
									-64.0	4		
			At El. -64.0 Ft., 5Y 5/1 gray	67	15			2	5			
						SPT Sampler	2					
						-65.5	3					
				87	16			3	6			
						SPT Sampler	3					
						-67.0	3					
			NOTES: 1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 57.5 ft. of 6" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Navy Fuel Facility. 5. Water depth of -43.5 ft. recorded at 08:15 AM on 2/2/2010. Tide gage reading of +0.5 ft. mllw				140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).		25			

SUSPENDED SEDIMENTATION TIME CURVES



JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 1.5'-3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 4.5'-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 6.0' - 7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 7.5'-9.0'

S-6

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 9.0'-10.5'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 10.5'-12.0'

S-8

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 12.0'-13.5'

S-9

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 13.5'-15.0'

S-10

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 15.0'-16.5'

S- 11

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 16.5'-18.0'

S-12

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 18.0'-19.5'

S-13

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 19.5'-21.0'

S-14

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 21.0'-22.5'

S-15

JACKSONVILLE HARBOR GRR

CB-JHPM09-38

DEPTH: 22.5'-24.0'

S-16

TEST CORE BORING NUMBER
“CB-JHPM09-39”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-39

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS		
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) DRUMMOND WIDENER				9. SIZE AND TYPE OF BIT See Remarks					
2. BORING DESIGNATION CB-JHPM09-39		LOCATION COORDINATES X = 466,081 Y = 2,208,167		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW		
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.		CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER			
4. NAME OF DRILLER Tim Clarkson				12. TOTAL SAMPLES		DISTURBED 10	UNDISTURBED (UD) 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES 0					
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER TIDAL					
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 01-31-10	COMPLETED 01-31-10		
8. TOTAL DEPTH OF BORING 19.5 Ft.				16. ELEVATION TOP OF BORING -42.4 Ft.					
				17. TOTAL RECOVERY FOR BORING 82 %					
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer					
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-42.4	0.0		SAND, silty, mostly angular to subangular fine-grained sand-sized quartz, little silt, wet, 5Y 2.5/1 black (SM)	27	1		-42.4	0	0
			At El. -43.9 Ft., trace rounded coarse gravel-sized quartz, 5Y 3/2 dark olive gray	47	2		-43.9	0	8
			At El. -45.4 Ft., trace rounded fine gravel-sized quartz	100	3		-45.4	3	2
			At El. -46.4 Ft., discontinue rounded fine gravel-sized quartz, 5Y 5/1 gray	80	4		-46.9	1	5
			At El. -47.9 Ft., few clay				-48.4	2	3
-48.7	6.3		LIMESTONE, sandy, non-fossiliferous, very soft, highly weathered, fine grained, 5Y 8/1 white	60	5		-49.9	1	5
			At El. -49.9 Ft., moderately hard, slightly weathered, solid	0	6		-50.0	2	
			At El. -52.4 Ft., soft	98	Run # 1	RQD 57	4 x 5-1/2" Diamond Impregnated Bit DT = 6 mins HP = 300 psi DFR = 20 %		10
			At El. -55.4 Ft., moderately hard	100	Run # 2	RQD 64	4 x 5-1/2" Diamond Impregnated Bit DT = 5 mins HP = 300 psi DFR = 20 %		15

DRILLING LOG (Cont. Sheet)			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW			
LOCATION COORDINATES X = 466,081 Y = 2,208,167			ELEVATION TOP OF BORING -42.4 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-57.9	15.5		SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, few silt, moist, moderate cementation, 5Y 7/2 light gray (SP-SM)	100	Run # 2	RQD 64	4 x 5-1/2" Diamond Impregnated Bit DT = 5 mins HP = 300 psi DFR = 20 %	17	32
	67			7		SPT Sampler	15		
							-60.4	17	31
				93	8		SPT Sampler	15	
-61.9	19.5						-61.9	16	
			NOTES:						
			1. USACE Jacksonville is the custodian for these original files.						
			2. Soils are field visually classified in accordance with the Unified Soils Classification System.						
			3. Set 55.5 ft. of 6" flush joint steel casing						
			4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Navy Fuel Facility.						
			5. Water depth of -45.0 ft. recorded at 11:50 AM on 1/31/2010. Tide gage reading of +2.6 ft. mllw						
			6. Compressive Strength Test of Rock Core At Elevation -50.1' to -50.6' = 664 PSI.						

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 15'-3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 3.0'-4.5'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 4.5'-6.0'

S-4

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 6.0'-7.5'

S-5

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 7.5' - 7.7'

S-6

no recovery

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 7.5'-12.5'

S- Run #1

7.5'



12.5'



JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 12.5'-16.5'

S- Run #2

12.5'



16.5'



JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 16.5'-18.0'

S-7

JACKSONVILLE HARBOR GRR

CB-JHPM09-39

DEPTH: 18.0'-19.5'

S-8

TEST CORE BORING NUMBER
“CB-JHPM09-40”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-40

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District		SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) BROWARD WIDENER				9. SIZE AND TYPE OF BIT See Remarks			
2. BORING DESIGNATION CB-JHPM09-40		LOCATION COORDINATES X = 469,922 Y = 2,210,183		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.		CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER	
4. NAME OF DRILLER Tim Clarkson				12. TOTAL SAMPLES		DISTURBED 6	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		0	
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER		TIDAL	
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 01-29-10 COMPLETED 01-29-10	
8. TOTAL DEPTH OF BORING 17.0 Ft.				16. ELEVATION TOP OF BORING		-46.7 Ft.	
				17. TOTAL RECOVERY FOR BORING		88 %	
				18. SIGNATURE AND TITLE OF INSPECTOR		V. J. Thompson III, Civil Engineer	

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-46.7	0.0						-46.7		
			SAND, poorly-graded with silt, mostly angular to subangular fine to medium-grained sand-sized quartz, few angular to subangular shell up to 1-1/4", few silt, wet, moderate cementation, 5Y 6/3 pale olive (SP-SM)	47	1		SPT Sampler	0	
-48.2	1.5						-48.2	3	8
			SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, some angular to subangular shell up to 3/8", little silt, wet, moderate cementation, 5Y 6/3 pale olive (SM)	87	2		SPT Sampler	11	
-49.7	3.0						-49.7	10	21
			LIMESTONE, non-fossiliferous, moderately hard, slightly weathered, fine grained, thick bedding, bedding orientation, moist, 5Y 7/3 pale yellow	100	3		SPT Sampler	11	
-50.7	4.0		LIMESTONE, hard, solid, 5Y 6/3 pale olive				-50.7	28	
								49	
-52.7	6.0						4 x 5-1/2" Diamond Impregnated Bit DT = 5 mins HP = 300 psi DFR = 0 %		5
			LIMESTONE, soft, highly weathered, pitted, clay filled pits	100	Run # 1	RQD 33	-53.2		
							4 x 5-1/2" Diamond Impregnated Bit DT = 3 mins HP = 300 psi DFR = 0 %		10
				90	Run # 2	RQD 23	-58.2		
			At El. -58.2 Ft., massive bedding, bedding orientation, 5Y 5/2 olive gray						
							4 x 5-1/2" Diamond Impregnated Bit DT = 6 mins HP = 300 psi DFR = 0 %		
				91	Run # 3	RQD 55			
			At El. -61.1 Ft., moderately hard, slightly weathered, 5Y 7/1 light gray						15

JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 0.0'-1.5'

S- (

JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 1.5' - 3.0'

S-2

JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 3.0'-4.0'

S-3

JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 4.0'-6.5'

S-Run #1

4.0'



6.5'



JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 6.5' - 11.5'

S-Run #2

6.5'



11.5'



JACKSONVILLE HARBOR GRR

CB-JHPM09-40

DEPTH: 11.5'-17.0'

S- Run #3

11.5'



17.0'



TEST CORE BORING NUMBER
“CB-JHPM09-41”

gINT Boring Log
Laboratory Curves
Sample Photographs

Boring Designation CB-JHPM09-41

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Jacksonville District			SHEET 1 OF 2 SHEETS	
1. PROJECT Jacksonville Harbor General Reevaluation Report (GRR) BROWARD WIDENER				9. SIZE AND TYPE OF BIT See Remarks				
2. BORING DESIGNATION CB-JHPM09-41		LOCATION COORDINATES X = 468,160 Y = 2,209,835		10. COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83	VERTICAL MLLW	
3. DRILLING AGENCY Challenge Engineering & Testing, Inc.		CONTRACTOR FILE NO. 2009D08		11. MANUFACTURER'S DESIGNATION OF DRILL Diedrich D-50 Truckrig		<input type="checkbox"/> AUTO HAMMER <input checked="" type="checkbox"/> MANUAL HAMMER		
4. NAME OF DRILLER Tim Clarkson				12. TOTAL SAMPLES		DISTURBED 12	UNDISTURBED (UD) 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED				13. TOTAL NUMBER CORE BOXES		1		
6. THICKNESS OF OVERBURDEN N/A				14. ELEVATION GROUND WATER		TIDAL		
7. DEPTH DRILLED INTO ROCK N/A				15. DATE BORING		STARTED 02-01-10	COMPLETED 02-01-10	
8. TOTAL DEPTH OF BORING 18.0 Ft.				16. ELEVATION TOP OF BORING		-47.8 Ft.		
				17. TOTAL RECOVERY FOR BORING		83 %		
				18. SIGNATURE AND TITLE OF INSPECTOR V. J. Thompson III, Civil Engineer				

ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	RQD OR UD	REMARKS	BLOWS/0.5 FT.	N-VALUE
-47.8	0.0		CLAY, lean, low plasticity, very soft, trace organic matter, trace angular shell up to 1/8", wet, organic odor, 5Y 2.5/1 black (CL)	67	1		-47.8	0	0
							SPT Sampler	0	0
				100	2		-49.3	0	0
							SPT Sampler	0	0
			At El. -50.8 Ft., medium plasticity, very soft, discontinue shell	100	3		-50.8	0	0
							SPT Sampler	0	0
				73	4		-52.3	0	5
							SPT Sampler	0	0
				100	5		-53.8	0	0
							SPT Sampler	1	2
				100	6		-55.3	1	2
							SPT Sampler	1	2
			At El. -56.6 Ft., little wood debris, few organic matter, moist, 10YR 3/2 very dark grayish brown	80	7		-56.8	0	1
							SPT Sampler	0	1
				60	8		-58.3	1	10
							SPT Sampler	4	10
-59.5	11.7		SAND, silty, mostly angular to subangular fine to medium-grained sand-sized quartz, little silt, moist, 5Y 3/2 dark olive gray (SM)	53	9		-59.8	2	3
							SPT Sampler	1	3
-60.8	13.0		LIMESTONE, sandy, sparsely fossiliferous, very soft, slightly weathered, moist, 5Y 6/2 light olive gray	93	10		-61.3	2	42
							SPT Sampler	3	42
							-62.8	15	15

Boring Designation CB-JHPM09-41

<i>DRILLING LOG (Cont. Sheet)</i>			INSTALLATION Jacksonville District			SHEET 2 OF 2 SHEETS			
PROJECT Jacksonville Harbor General Reevaluation Report (GRR)			COORDINATE SYSTEM/DATUM State Plane, FLE (U.S. Ft.)		HORIZONTAL NAD83		VERTICAL MLLW		
LOCATION COORDINATES X = 468,160 Y = 2,209,835			ELEVATION TOP OF BORING -47.8 Ft.						
ELEV.	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% REC.	BOX OR SAMPLE	ROD OR UD	REMARKS	BLOWS/ 0.5 FT.	N-VALUE
-65.8	18.0	Slightly Weathered	At El. -62.8 Ft., moderately hard	100	11		-63.1 SPT Sampler	50/0.3'	
			At El. -63.8 Ft., soft				Advanced Boring		
				87	12		SPT Sampler	15 19 21	40
			NOTES:	140# hammer w/30" drop used with 2.0' split spoon (1-3/8" I.D. x 2" O.D.).					
			1. USACE Jacksonville is the custodian for these original files. 2. Soils are field visually classified in accordance with the Unified Soils Classification System. 3. Set 64.5 ft. of 6" flush joint steel casing 4. Water depth recorded at start of drilling operations and referenced to the tidal station at the Navy Fuel Facility. 5. Water depth of -49.7 ft. recorded at 08:48 AM on 2/1/2010. Tide gage reading of +1.9 ft. mllw						

JACKSONVILLE HARBOR GRR

CB-JHPM09-41

DEPTH: 0.0'-1.5'

S-1

JACKSONVILLE HARBOR GRR

CB-JHPM09-41

DEPTH: 1.5: 3.0'

S-2